Snow Measurement Guidelines
for
National Weather Service
Snow Spotters

National Weather Service Forecast Office Northern Indiana

September 2003

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Snow Measurement Guidelines

Introduction

The following snow measurement guidelines were developed from previously existing National Weather Service (NWS) procedures. The NWS Forecast Office in Northern Indiana is responsible for forecasts and warnings for 24 counties in northern Indiana, 8 counties in northwest Ohio, and 5 counties in southwest Michigan. Volunteer weather spotters are a key source of information to fill in the gaps between official NWS observing sites.

Definitions

Winter Storm Watch – Issued for the potential of 6 inches or more of snow in 12 hours, or 8 inches or more of snow in 24 hours. Also issued for potential of a quarter inch or more of freezing rain, or significant mixed precipitation.

Winter Storm Warning (snow) – Issued when 6 inches or more of snow is likely in 12 hours, or 8 inches or more of snow in 24 hours.

Winter Storm Warning (ice) – Issued when a quarter inch or more of ice accumulation is likely. Also issued for significant mixed precipitation events.

Blizzard Warning – Sustained winds or frequent gusts of 35 mph or greater causing visibility to be reduced to a one quarter mile or less in blowing snow for a period of 3 or more hours. Blizzards may or may not be accompanied by falling snow.

Winter Weather Advisory (snow) – Issued when 4 to 5 inches of snow are likely in a 12 hour period, or 6 to 7 inches over a 24 hour period.

Winter Weather Advisory (ice) – Issued when freezing rain is likely and expected to accumulate to less than a quarter inch.

Freezing Rain – Falls as **liquid rain** and **freezes upon contact** with surfaces such as sidewalks, roads, and trees.

Sleet – Falls as a frozen droplet of rain (ice pellets).

Relaying Real Time Information

Real time reports are just as important to the NWS as snowfall measurements. Here are a few examples of information that would be beneficial to forecast and warning operations.

- Change in precipitation type (rain to snow, snow to freezing rain, etc)
- Snow Accumulation of 1 inch or more
- Heavy Snowfall Rate (example: snowing at 1 inch per hour)
- Significant Blowing or Drifting snow
- Is the snow, ice, or blowing snow having a major impact on travel
- What is occurring is not what is in the forecast
- Anything significant that you think we should know about

Before the First Snow

Place your snowboard outside. A snowboard can be any lightly colored board that is about 2 feet by 2 feet. A piece of plywood painted white works very well. Choose a location that is away from trees, buildings, and shadows. Try to avoid areas that are known to be prone to drifting. Mark the location of the snowboard with a stake so you can find it after a fresh snowfall.

Measuring Snowfall

Snowfall is measured to the nearest tenth of an inch. Measure the greatest amount of snowfall that has accumulated on your snowboard since the last observation. You can measure on a wooden deck or ground if a snowboard is not available. **Snowfall should not be measured more than 4 times in 24 hours**. You can measure the hourly snowfall rate, but do not clean off your board each hour. Only clean off the board when you take one of the four daily measurements. Once the snow ends, add up the measurements from each time the snowboard was cleaned to reach a storm total.

Special cases:

- Snow falls and accumulates on the snowboard, but then melts. In this case, the snowfall is the greatest depth of snow observed on the board before it begins to melt. If this occurs several times, measure the snowfall after each snow shower and add each measurement for the total snowfall.
- Snow falls and melts continuously on the board. In this case, if the snow never reaches a depth of a tenth of an inch, then a trace of snowfall is recorded.
- Snow has blown or drifted onto the snowboard. In this case, take several measurements from around the yard where the snow has not drifted, being careful only to measure new snow. Take an average of the various measurements to arrive at a total.
- Sleet counts towards total snowfall, freezing rain accumulation does not.

Measuring Snow Depth

The depth of snow on the ground includes both new snow and old snow which was in place. Measure the total snow depth at several locations in your yard which have not drifted or blown. Take an average of these measurements to arrive at the snow depth. Sometimes old snow can be very hard and crusty underneath the new snow. Be sure that the ruler gets all the way down to the underlying ground. **Snow depth is measured to the nearest inch.**

Websites

Here is a list of numbers to report your information, and also several websites that offer a wide variety of weather information.

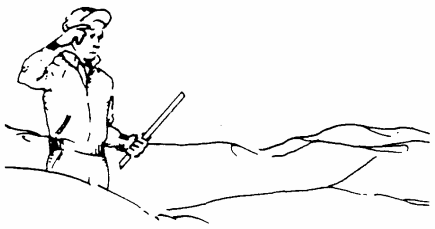
NWS Northern Indiana Homepage : www.crh.noaa.gov/iwx

Get our latest forecast in a variety of forms, including the old worded forecast as well as new graphical forecasts. Also get current weather information from surface observations to radar and satellite.

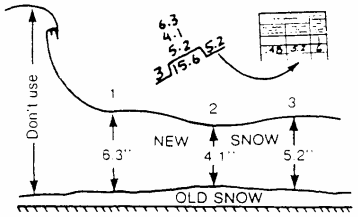
Appendix A

2 TO MEASURE SNOWFALL SINCE YESTERDAY'S OBSERVATIONS

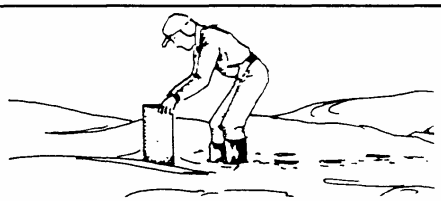
1. If the snow melts as it falls, enter a trace for snowfall.



2. Measure each new snow. Use good judgment in selecting spots where the snow is least affected by drifting.



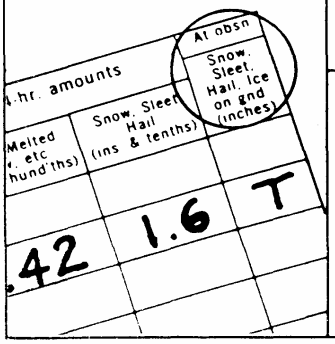
3. When possible, take several measurements where the snow is least affected by drifting (don't include deep drifts) and average.

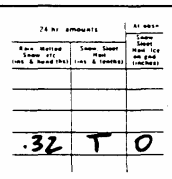


4. If the snow has blown out of the can or the "catch" is not good, cut a "biscuit" with the can where the snow is near the average and melt the biscuit for the water equivalent.

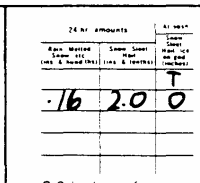
3 SNOW DEPTH

Entry in this column is the measurement to the nearest whole inch of all snow, sleet, ice and hail remaining on the ground at your regular observation every 24 hours.

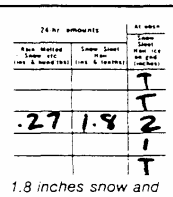




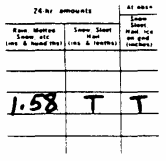
Rain and snow mixed; snow melted as it fell.



2.0 inches of new snow fell, containing .16 water--snow melted before time of observation.

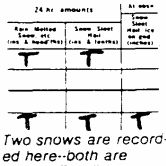


1.8 inches snow and ice pellets containing .27 water. 2 inches on ground at observation time.



1.58 inches rain fell and also a trace of hail; hail had not melted at observation time.

Rain fell and froze causing 2 inches ice (glaze on ground at observation time).



Two snows are recorded here--both are traces. The first one melted before observation time; the latter did not melt before observation time.